

A. I. A. FILE NO. 12-L-2  
1946



ALUMINUM COMPANY OF AMERICA

ALUMINUM

ALCOA



COPINGS  
AND GRAVEL STOPS

A. I. A. FILE NO. 12-L-2  
1946

George

Mike Jackson, FAIA

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ALUMINUM COMPANY OF AMERICA

# ALUMINUM

ALCOA

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## COPINGS



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*Seeger*

# COPINGS AND GRAVEL STOPS

ALCOA

# ALUMINUM

ALUMINUM COMPANY OF AMERICA



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# COPINGS

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ALCOA

# ALUMINUM

ALUMINUM COMPANY OF AMERICA







# COPINGS AND GRAVEL

## ADAPTABLE

Since Alcoa Aluminum is available in a wide variety of commercial forms, any type of construction and any thickness of wall can be made watertight.

## ECONOMICAL

Because of their light weight, long lengths of aluminum are easily handled by one man, thus achieving savings in time and labor. Copings are assembled from standard extruded shapes and formed sheet aluminum, resulting in low unit cost. Non-rusting and requiring no painting, Alcoa sections do away with maintenance cost. Installation is simple and rapid.

## PRECISE

The extruded sections, because of the nature of the extrusion process, are sharp, clean-cut in appearance and true to form. When long lengths are used, straight lines with fewer joints result in a pleasing appearance.

Special dies may be ordered to give variety of fascia widths, profiles or pitch of wash.







# STOPS OF ALCOA ALUMINUM

Since aluminum is available in so many commercial forms suited to the Architect's needs, Alcoa Aluminum copings or gravel stops may be designed to suit any type of construction. They meet all the requirements for appearance, exacting performance, economy, ease of installation and permanent watertightness.

The inherent characteristics of aluminum combining natural light weight with adequate strength make possible the use of long sections with a minimum of construction joints and allow easy handling by one man.

Aluminum, in itself, cannot streak or drip-stain adjoining surfaces. It does not rust and resists corrosion and requires no maintenance painting. Aluminum is readily worked and it is relatively easy for workmen to make neat fits against adjoining construction with aluminum products by simply cutting as required with a hacksaw.

On the following pages are shown the various types of copings and gravel stops; they are made from aluminum in two of its commercial forms; extruded shapes and sheet.

**EXTRUDED ALUMINUM COPING** in a single one-piece shape for walls up to 8½" in thickness utilizes the refinements of the extrusion process to create an economical and permanently watertight cap.

**EXTRUDED AND SHEET ALUMINUM COPING** consists of an Alcoa extruded shape combined with formed sheet aluminum. This type provides a watertight cover for parapet walls of any thickness.

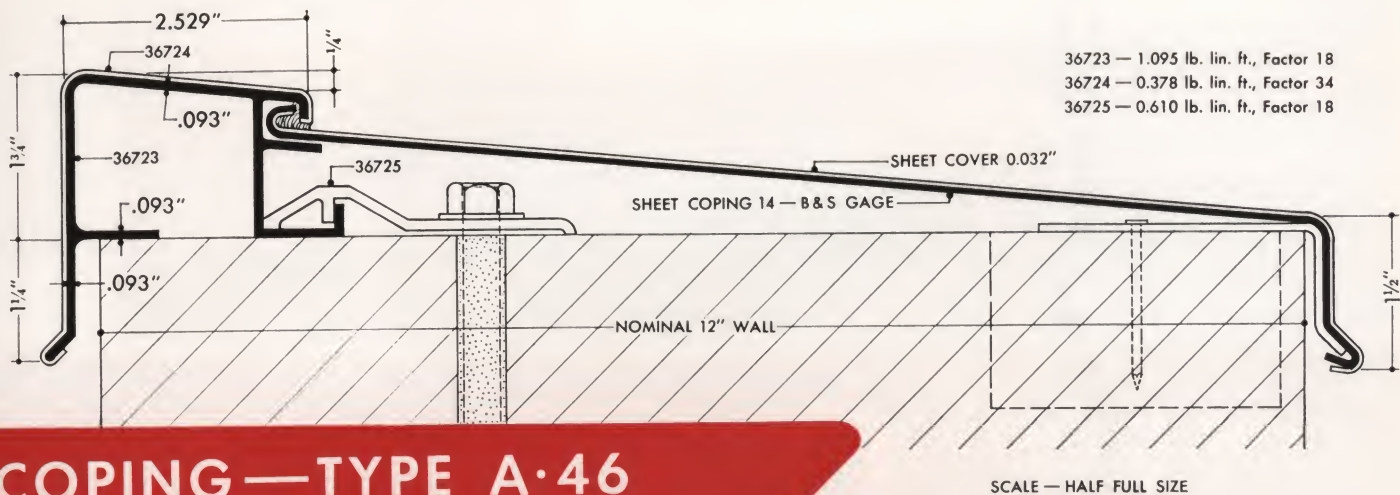
**SHEET ALUMINUM COPING** represents the last word in economical installation. Design variations can be introduced for copings of any wall thickness.

**EXTRUDED ALUMINUM FASCIA AND GRAVEL STOP** provides a practical and economical means for finishing edges of flat roofs and offers an especially neat and attractive appearance.

**EXTRUDED ALUMINUM GRAVEL STOPS** are single extruded shapes for providing a positive gravel stop on the regular flat roof. These sections combine the functional gravel stop and a neat fascia at the top of the wall.





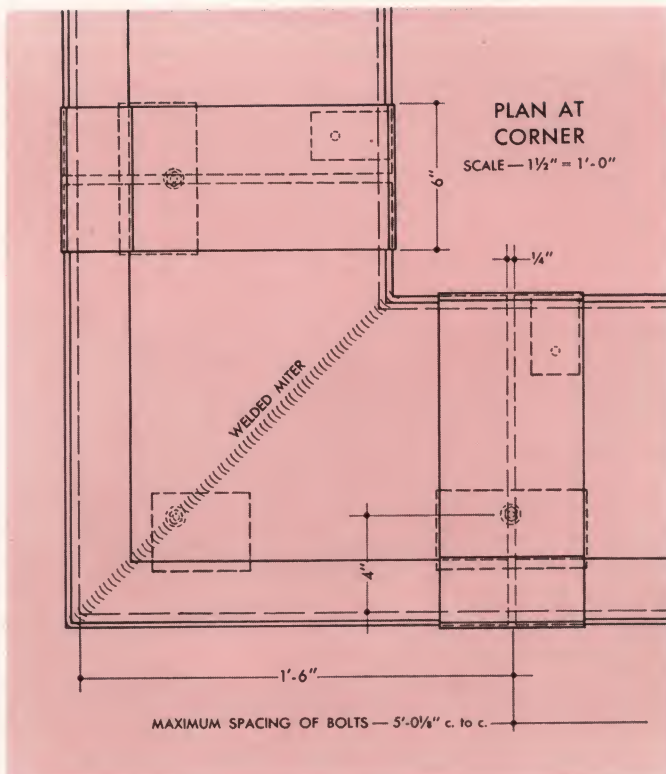


## COPING—TYPE A-46

### EXTRUDED AND SHEET ALUMINUM FOR ANY WALL THICKNESS

This type of Coping, which combines an Alcoa extruded shape with formed sheet aluminum, is adaptable for walls of any thickness or material. The extruded shape may be purchased cut to specified lengths and requires very little shop fabrication.

The Coping Sheet proper and Joint Cover Sheet can be readily and accurately formed by any well equipped fabrication shop. The result is an economical and watertight custom-built coping designed for the structure on which it is used.



## MASTER SPECIFICATIONS INSERT

(Master Specifications on Pages 16 and 17)

### EXTRUDED SHAPES

Extruded shapes shall be Alcoa Aluminum alloy 3S, as extruded, Federal Specification QQ-A-356b, Condition F. The extruded Coping shall be not less than 0.093 inch thick; the extruded Expansion Joint Cover shall be not less than 0.050 inch thick.

Extruded shapes shall have smooth, clean, sharp profiles, true to details, dimensions, design requirements and unless otherwise noted, shall be straight and true to line, and shall conform to Alcoa standard tolerance for extruded shapes.

Extruded shapes formed to curve shall be true to radii and free from buckling, kinking or twisting. Certain or all shapes shall be made with miters, slots, plain or tapped holes as required for assembly.

### SHEET ALUMINUM

Aluminum sheet shall be Alcoa Aluminum alloy 3S, 1/2 H temper, Federal Specification QQ-A-359a, Condition 1/2 hard. The Coping sheet shall be not less than 0.064 inch in thickness; the Sheet Joint Cover shall be not less than 0.032 inch in thickness.

Sheet Aluminum shall be formed to details, dimensions and design requirements as shown on the drawings and, unless otherwise noted, shall be straight and true to line.

Sheets formed to curve shall be true to radii and free from buckling, twisting or kinking, and made with miters, holes and crimps as required for complete assembly.

Sheet coping sections shall be furnished in lengths not to exceed 10'-0".

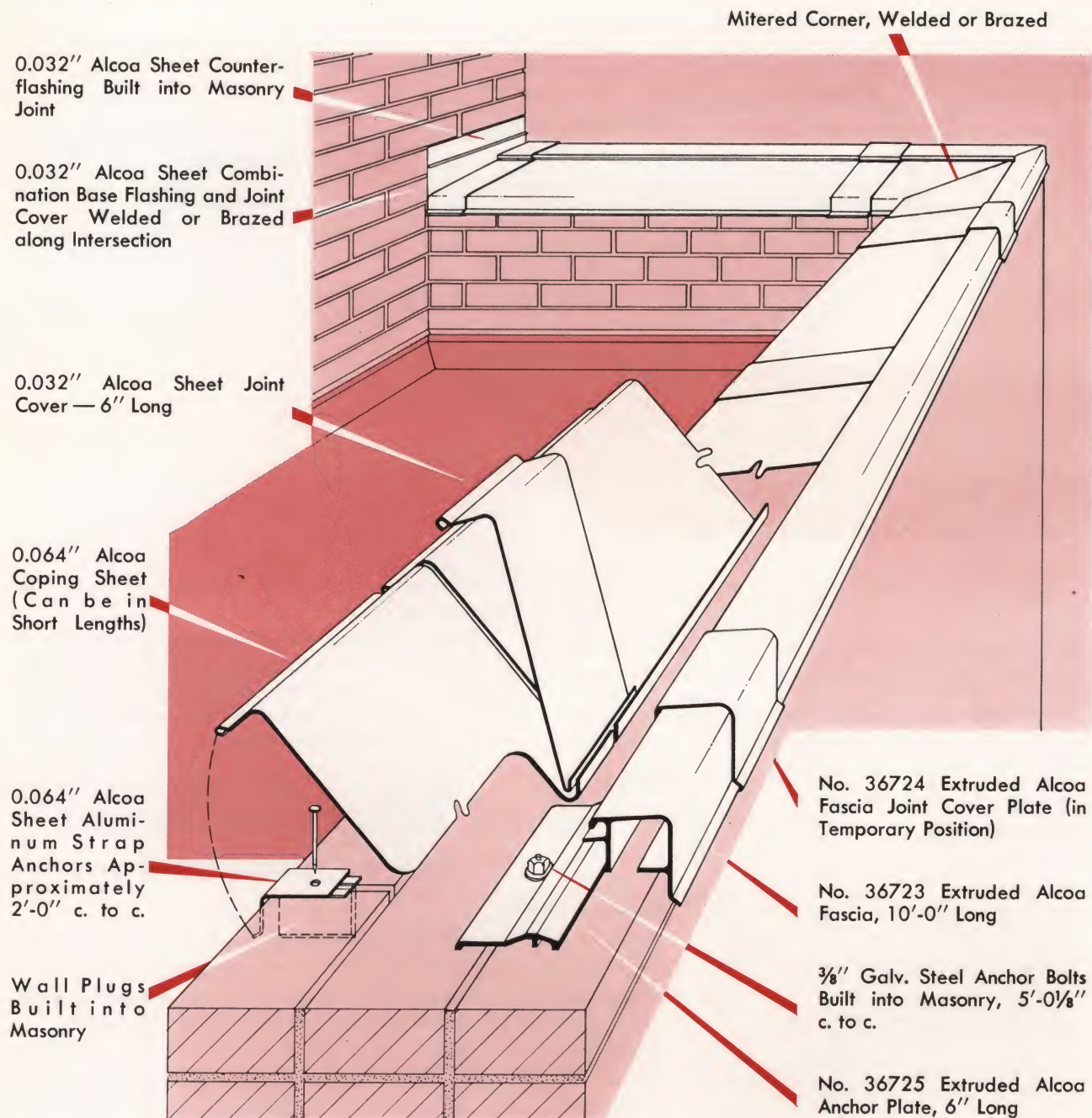
### EXTRUDED ANCHOR PLATES

Anchor Plates shall be Alcoa Aluminum alloy 3S, as extruded, Federal Specification QQ-A-356b, Condition F; formed true to detail, and having a minimum thickness of 0.125". Formed sheet strap anchors shall be 3S, 1/2 H alloy not less than 0.064 inch in thickness.

### NAILS

Nails for securing strap anchors shall be aluminum or galvanized steel roofing nails.





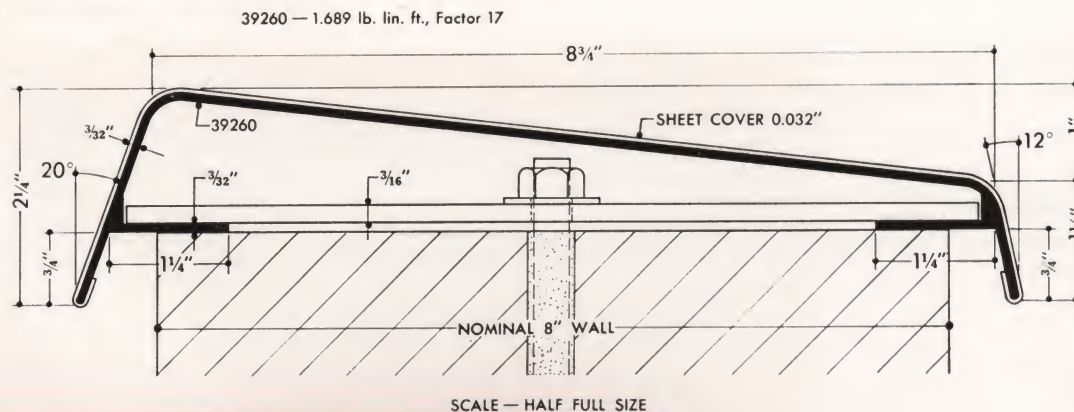
## INSTALLATION IS SIMPLE

1. Work from the corners;
2. Nail Strap Anchors in place;
3. Place 10-foot section of Extruded Copings;
4. Slide on Extruded Expansion Joint Cover to clear joint;
5. Insert Anchor Plate;
6. Slip next 10-foot section of Extruded Copping under Anchor Plate, allowing  $\frac{1}{4}$  inch between sections for expansion;
7. Place anchor washer and nut and tighten;
8. Place bed of bituminous mastic on top at ends of Extruded Copings at expansion joints and slide Extruded Expansion Joint Cover over joint;
9. Place bed of bituminous mastic on top at ends of Copping Sheets at expansion joints and hook Copping Sheet under Extruded Copping. Snap drip edge into place over Strap Anchors.
10. Hook Sheet Joint Cover under Extruded Copping at expansion joints and snap drip edge into place over Copping Sheet.
11. Caulk at joint between Copping Sheet and Extruded Copping.

ALUMINUM COMPANY OF AMERICA







## COPING—TYPE B-46

### EXTRUDED ALUMINUM FOR 8-INCH WALL THICKNESS

This one-piece Alcoa Extruded Coping section represents but one of many possible designs for walls up to 8 1/2" in thickness. Copings of one extruded section can be designed with almost any contour or degree of pitch, the only limitation being that the overall dimension does not exceed 10".

The Joint Cover Plate normally is formed from aluminum sheet material; however, where the quantity in-

volved warrants, an extrusion die may be constructed to produce the shape.

The Anchor Plates allow for expansion movement and, during erection, for adjustment of the Coping either longitudinally or transversely on the wall to compensate for any possible misalignment of the anchor bolts, thus achieving a straight coping line.

## MASTER SPECIFICATIONS INSERT

(Master Specifications on Pages 16 and 17)

### EXTRUDED SHAPES

Extruded shapes shall be Alcoa Aluminum alloy 3S, as extruded, Federal Specification QQ-A-356b, Condition F, not less than 0.093 inch thick unless otherwise specified.

Extruded shapes shall have smooth, clean, sharp profiles, true to details, dimensions, design requirements and unless otherwise noted, shall be straight and true to line, and shall conform to Alcoa standard tolerance for extruded shapes.

Extruded shapes formed to curve shall be true to radii and free from buckling, kinking or twisting. Certain or all shapes shall be made with miters, slots and plain or tapped holes as required for assembly.

### SHEET ALUMINUM

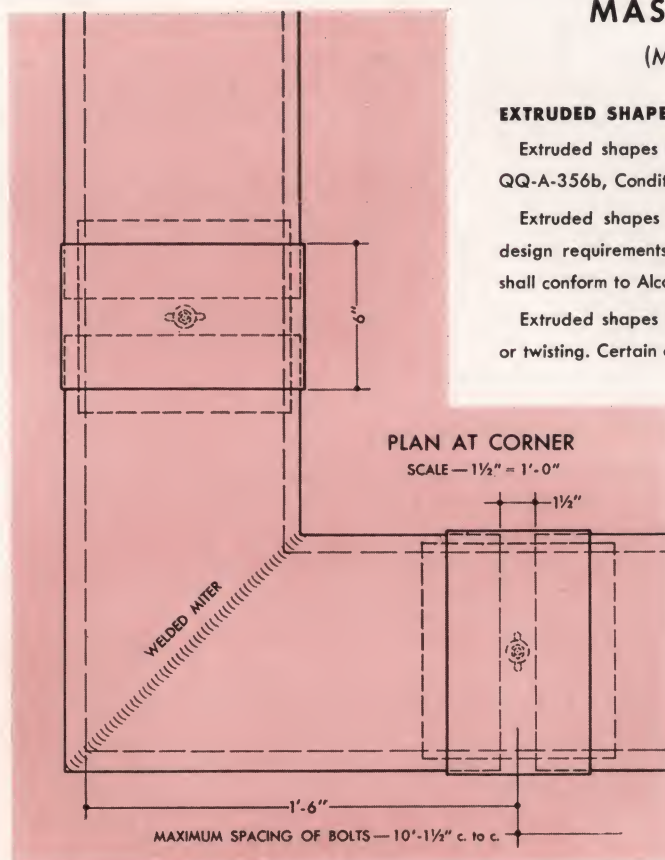
Aluminum sheet shall be Alcoa Aluminum alloy 3S, 1/2 H temper, Federal Specification QQ-A-359a, Condition 1/2 Hard, having a minimum thickness of 0.032 inch.

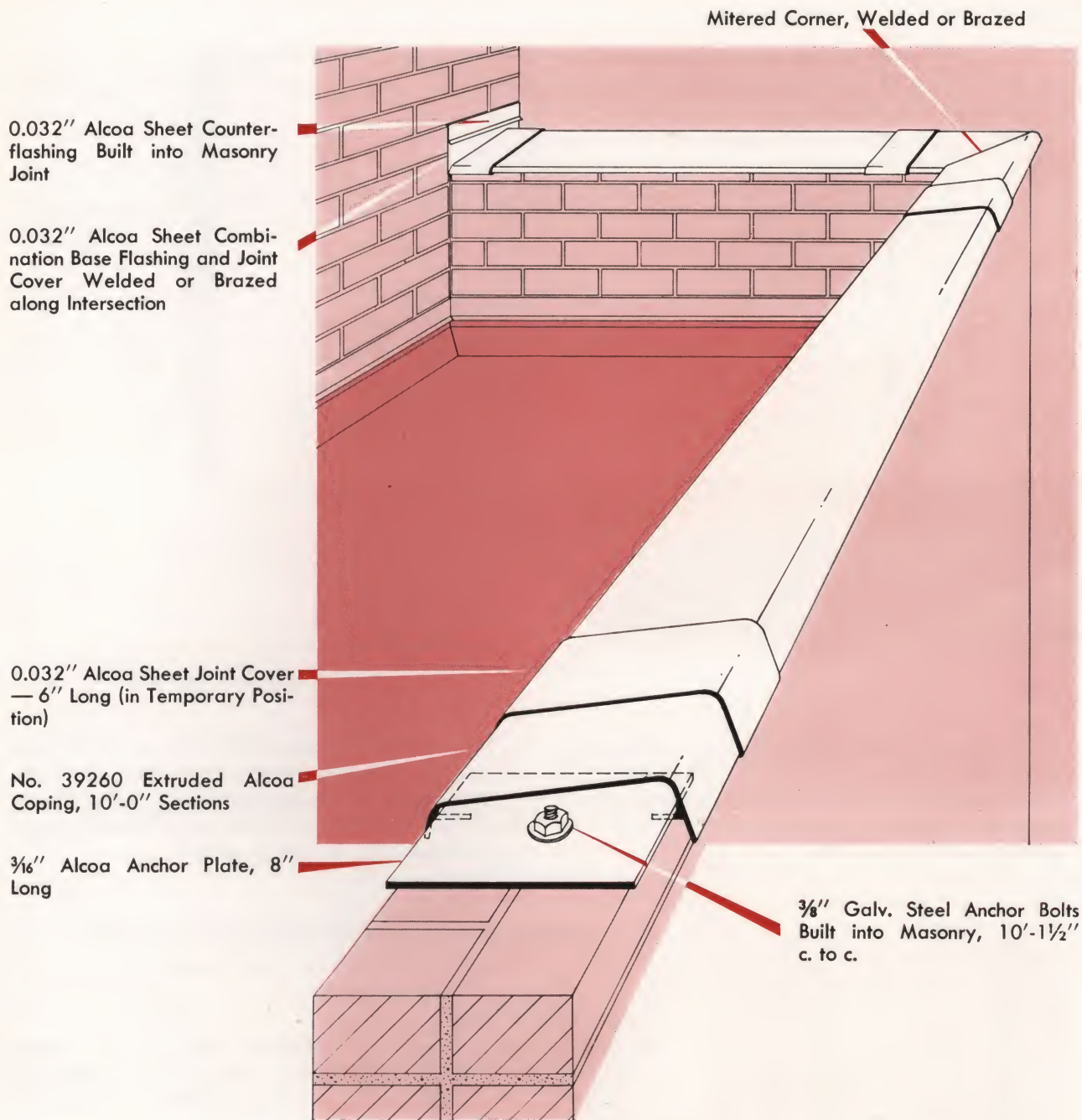
Sheet aluminum shall be formed to details, dimensions and design requirements as shown on the drawings and, unless otherwise noted, shall be straight and true to line.

Sheets formed to curve shall be true to radii and free from buckling, twisting or kinking, and made with miters, holes and crimps as required for complete assembly.

### ANCHOR PLATES

Anchor Plates shall be Alcoa Aluminum alloy 3S, 1/2 H temper, Federal Specification QQ-A-359a, Condition 1/2 Hard.





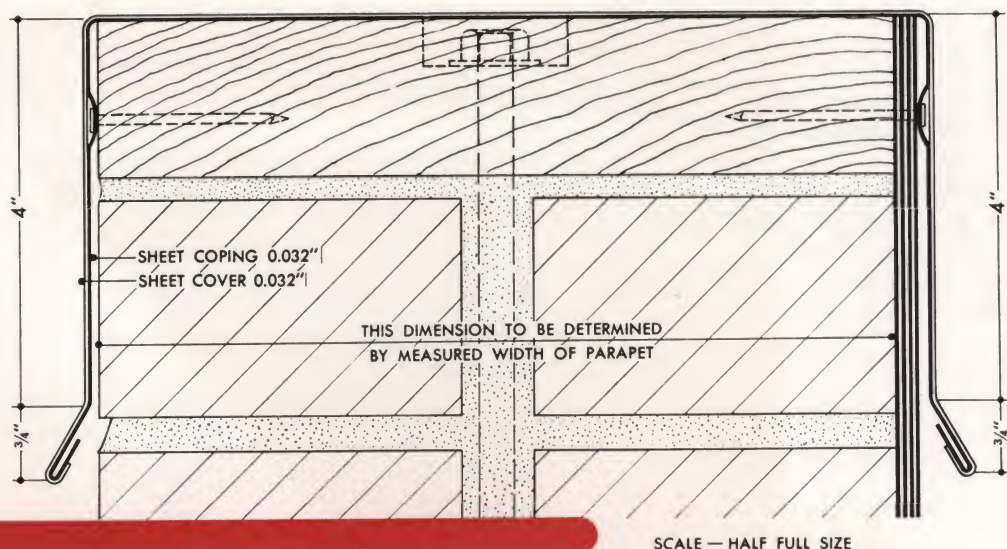
## INSTALLATION IS SIMPLE

1. Work from the corner;
2. Place 10-foot section of Extruded Coping;
3. Insert Anchor Plate and anchor washer and nut loosely;
4. Slide on Sheet Joint Cover to clear joint;
5. Slip next 10-foot section of Extruded Coping under Anchor Plate.
6. Tighten anchor nut;
7. Place bed of bituminous mastic on top at ends of Extruded Copings at expansion joints and slide Sheet Joint Cover over joint. Pinch tight at one corner.

ALUMINUM COMPANY OF AMERICA







## COPING—TYPE C-46

SHEET ALUMINUM  
FOR ANY WALL THICKNESS

This latest addition to Alcoa Copings is intended for applications where economy is the first consideration without sacrificing the many well known advantages of aluminum. Variations of the basic design can easily be executed in any metal shop.

This one-piece Coping is suitable for any wall thickness or material. Nailing at only one end of each section provides a simple but effective method of anchorage and results in a watertight unit which permits free expansion and contraction of the coping sections.

### MASTER SPECIFICATIONS INSERT

(Master Specifications on Pages 16 and 17)

#### SHEET ALUMINUM

Aluminum sheet shall be Alcoa Aluminum alloy 3S, 1/2 H temper, Federal Specification QQ-A-359a, Condition 1/2 Hard, having a minimum thickness of 0.032 inch.

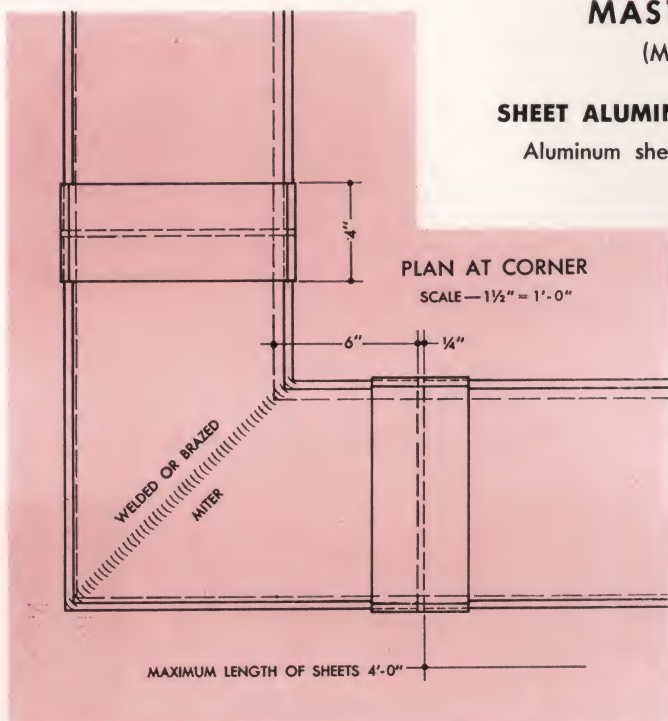
Sheet aluminum shall be formed to details, dimensions and design requirements as shown on the drawings and, unless otherwise noted, shall be straight and true to line.

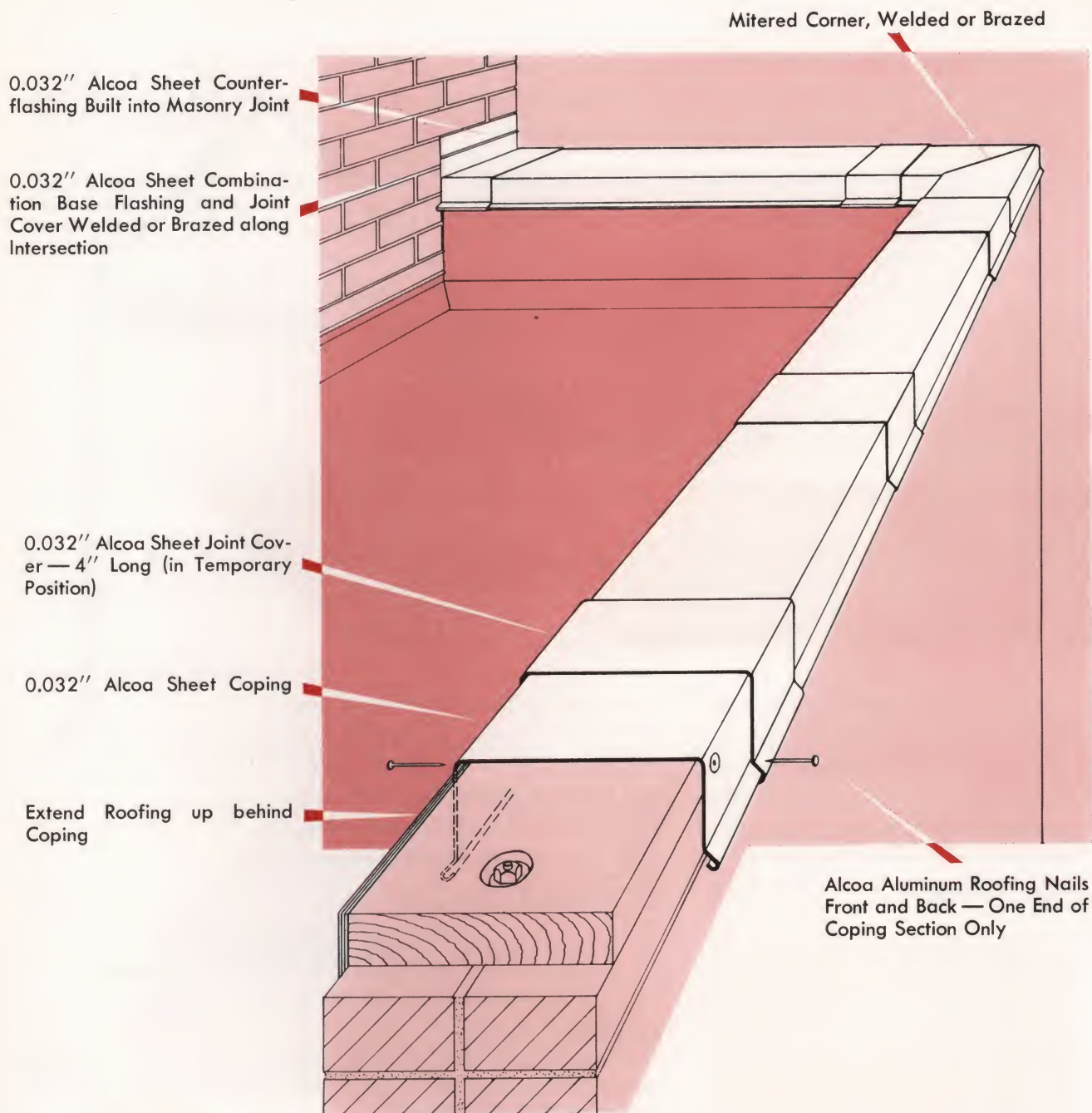
Sheets formed to curve shall be true to radii and free from buckling, twisting or kinking, and made with miters, holes and crimps as required for complete assembly.

Sheet Coping sections shall be furnished in lengths not to exceed 8'-0".

#### NAILS

Nails for fastening Coping sheets to wood blocking shall be aluminum nails.





## INSTALLATION IS SIMPLE

1. Work from the corner;
2. Place section of Sheet Aluminum Coping;
3. Slide on Sheet Aluminum Joint Cover Plate to clear joint;
4. Nail front and back of Sheet Aluminum Coping at starting end only;
5. Place next section of Sheet Aluminum Coping, allowing  $\frac{1}{4}$ " between sections for expansion, and nail one end of Coping only;
6. Place bed of bituminous mastic on top at ends of Coping Sheets at expansion joints. Slide Sheet Aluminum Joint Cover Plate over joint and pinch one corner tightly.

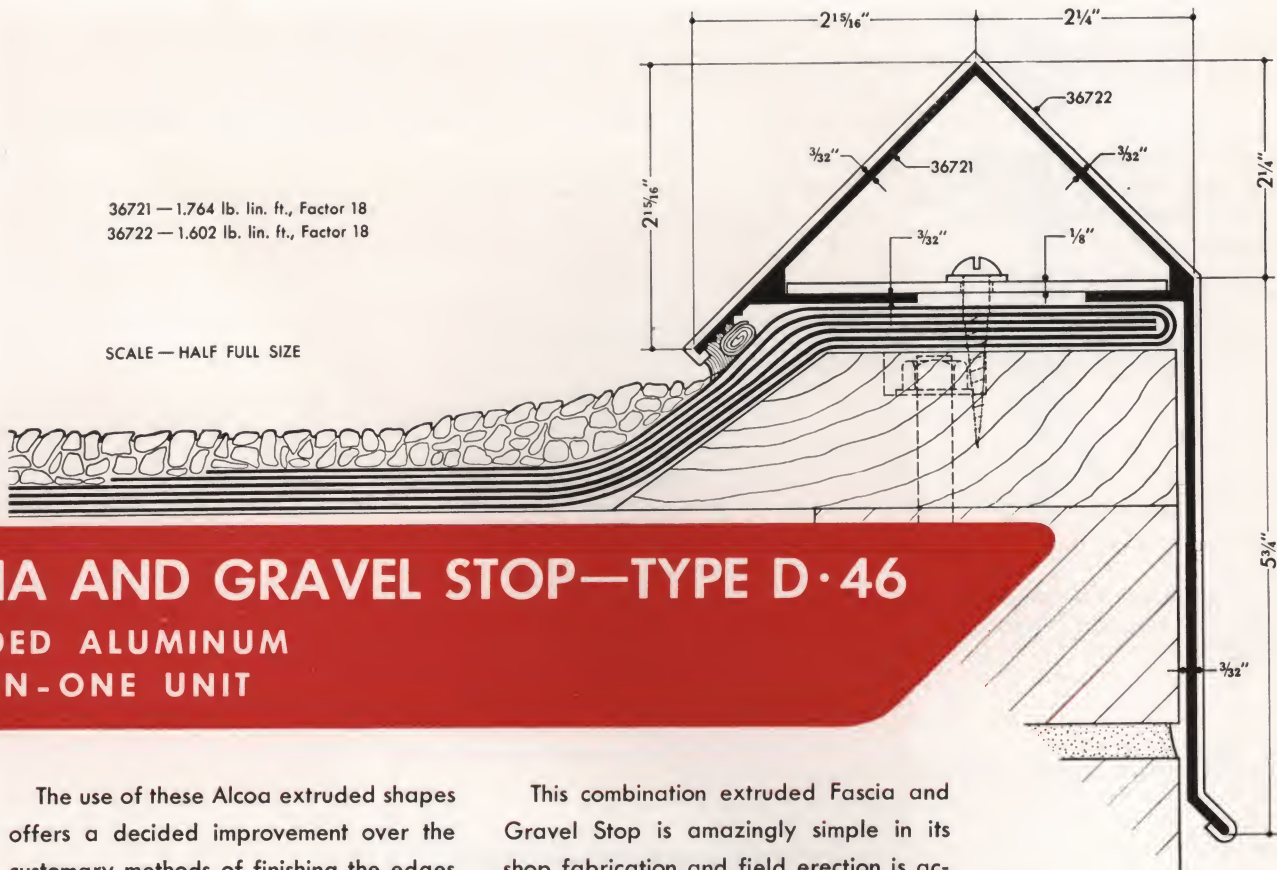
ALUMINUM COMPANY OF AMERICA





36721 — 1.764 lb. lin. ft., Factor 18  
36722 — 1.602 lb. lin. ft., Factor 18

SCALE — HALF FULL SIZE



## FASCIA AND GRAVEL STOP—TYPE D-46

EXTRUDED ALUMINUM  
FOUR-IN-ONE UNIT

The use of these Alcoa extruded shapes offers a decided improvement over the customary methods of finishing the edges of flat roof construction. The simplified one-piece section serves a fourfold duty as a gravel stop, coping, terminal cap for the roof membrane and as a fascia band.

This combination extruded Fascia and Gravel Stop is amazingly simple in its shop fabrication and field erection is accomplished accurately with a minimum of operations. The self-aligning Anchor Plates at the joints permit perfect freedom for expansion movement.

### MASTER SPECIFICATIONS INSERT

(Master Specifications on Pages 16 and 17)

#### EXTRUDED SHAPES

Extruded shapes shall be Alcoa Aluminum alloy 3S, as extruded, Federal Specification QQ-A-356b, Condition F, not less than 0.093 inch thick unless otherwise specified.

Extruded shapes shall have smooth, clean, sharp profiles, true to details, dimensions, design requirements and unless otherwise noted, shall be straight and true to line, and shall conform to Alcoa standard tolerance for extruded shapes.

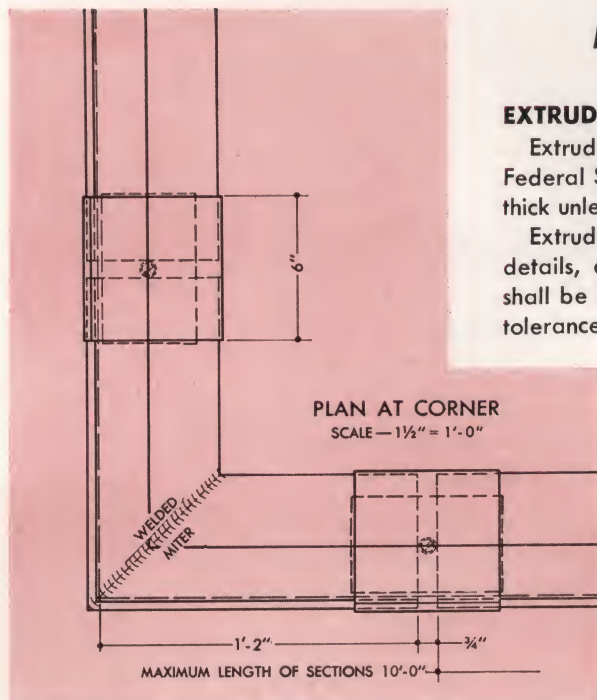
Extruded shapes formed to curve shall be true to radii and free from buckling, kinking or twisting. Certain or all shapes shall be made with miters, slots and holes as required for assembly.

#### Screws

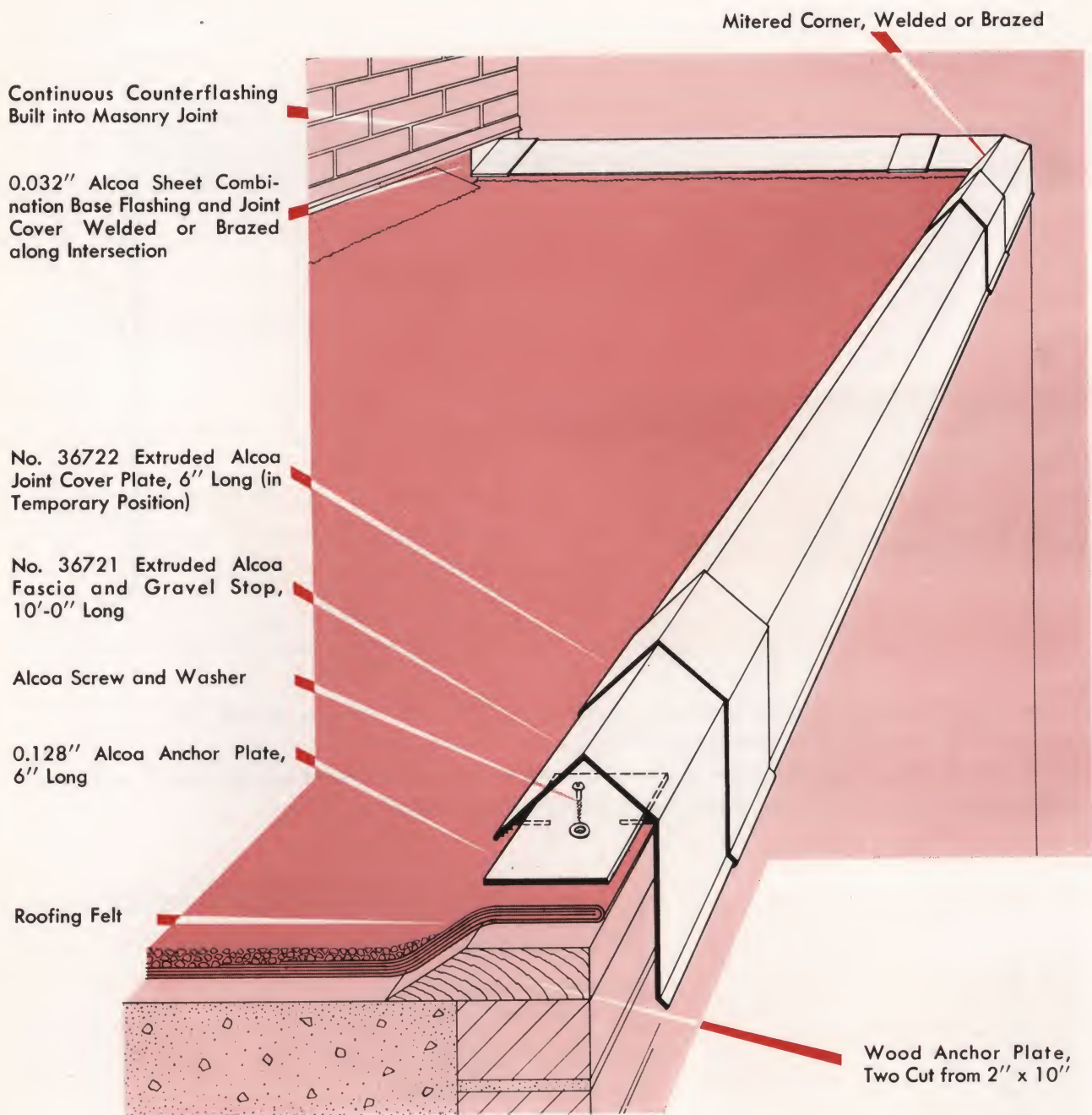
Aluminum Screws shall be Alcoa Aluminum alloy 24S-T, heat-treated, Federal Specification FF-S-111 (as applicable).

#### ANCHOR PLATES

Anchor Plates and washers shall be Alcoa Aluminum alloy 3S, Full Hard Temper, Federal Specification QQ-A-359a, Condition H.







## INSTALLATION IS SIMPLE

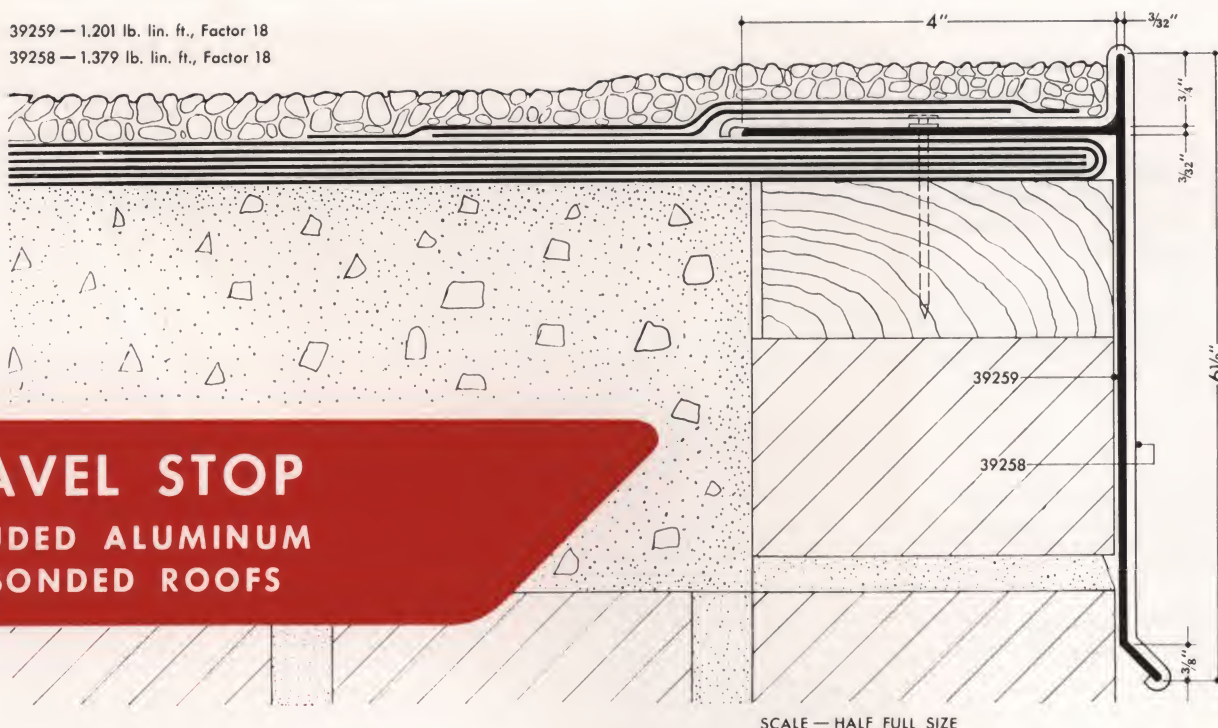
1. Work from the corner;
2. Place 10-foot section of Extruded Fascia and Gravel Stop;
3. Slide on Extruded Joint Cover Plate to clear joint;
4. Insert Anchor Plate;
5. Slip next 10-foot section of Extruded Fascia and Gravel Stop under Anchor Plate, allowing  $\frac{3}{4}$ " between sections;
6. Place aluminum washer and screw, and drive lightly to permit expansion movement of sections;
7. Place bed of bituminous mastic on top at ends of Extruded Fascia and Gravel Stops at expansion joints. Slide Extruded Joint Cover Plate over joint and pinch lightly at one corner.

ALUMINUM COMPANY OF AMERICA





39259 — 1.201 lb. lin. ft., Factor 18  
 39258 — 1.379 lb. lin. ft., Factor 18



## GRAVEL STOP

### EXTRUDED ALUMINUM FOR BONDED ROOFS

The use of this Alcoa Extruded Gravel Stop with its Joint Cover Plate gives a positive water-sealed unit at minimum cost. Installation of this unit is accomplished by driving one nail in the

center of each length and one through the Cover Plate at each joint.

This Gravel Stop was designed especially for use with bonded roofing.

## MASTER SPECIFICATIONS INSERT

(Master Specifications on Pages 16 and 17)

### EXTRUDED SHAPES

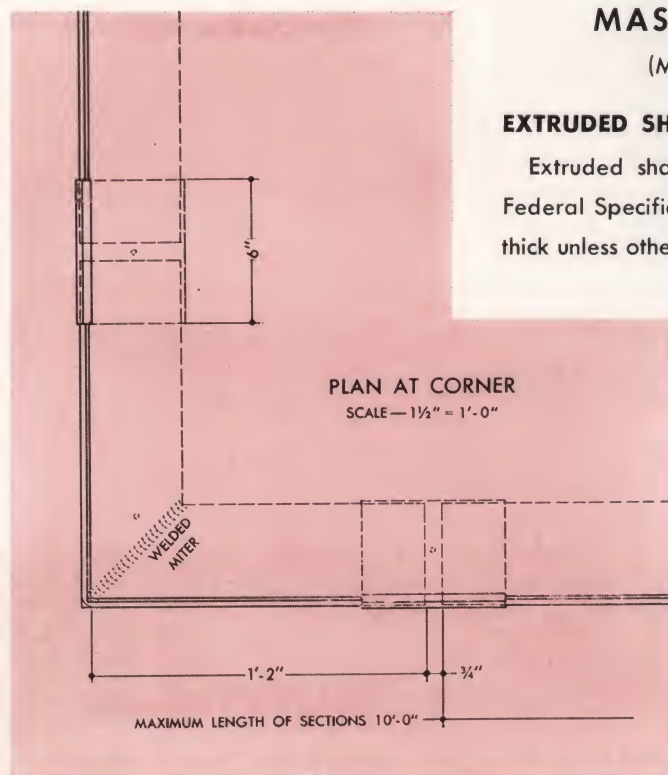
Extruded shapes shall be Alcoa Aluminum alloy 3S, as extruded, Federal Specification QQ-A-356b, Condition F, not less than 0.093 inch thick unless otherwise specified.

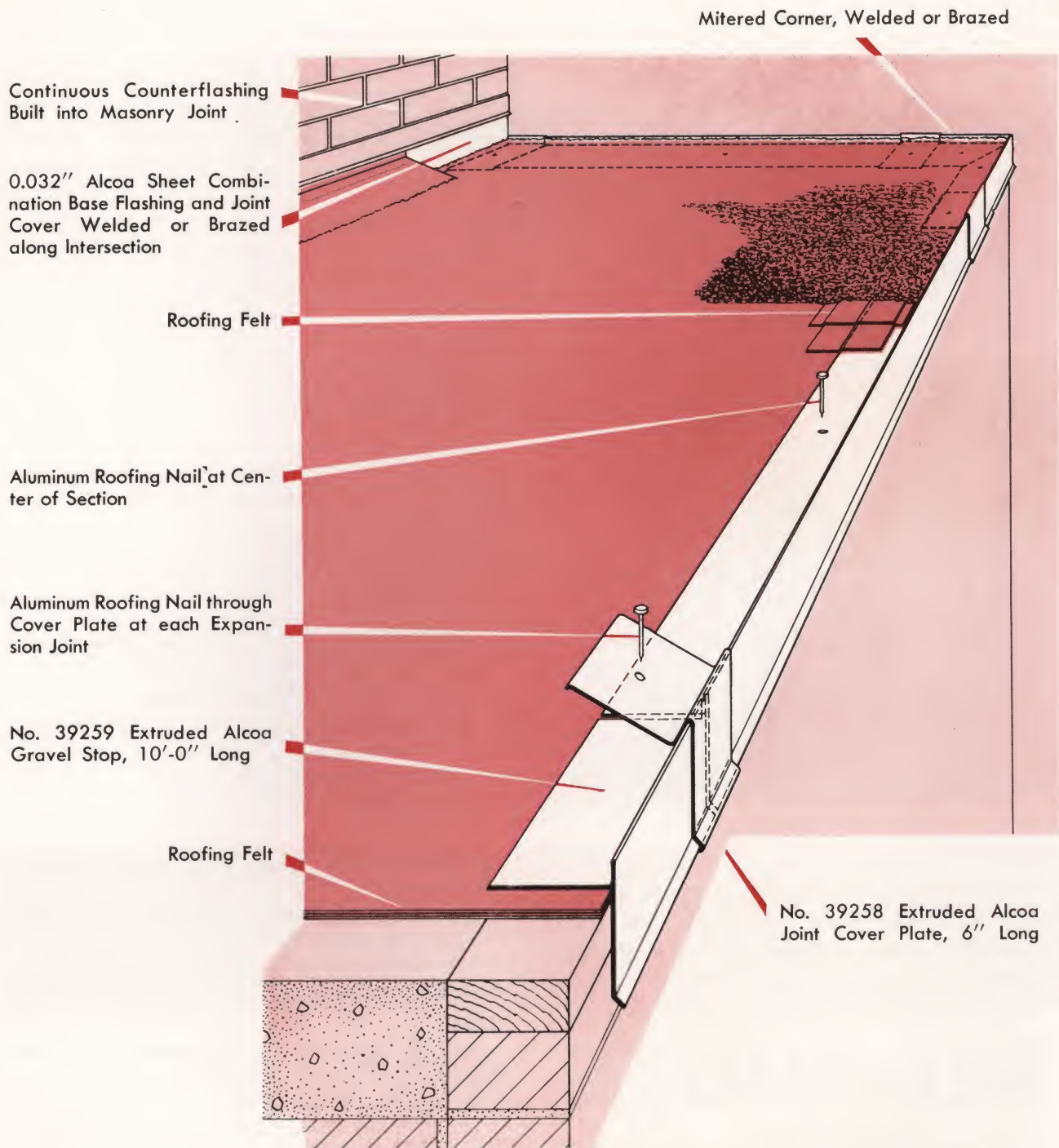
Extruded shapes shall have smooth, clean, sharp profiles, true to details, dimensions, design requirements and unless otherwise noted, shall be straight and true to line, and shall conform to Alcoa standard tolerance for extruded shapes.

Extruded shapes formed to curve shall be true to radii and free from buckling, kinking or twisting. Certain or all shapes shall be made with miters, slots and holes as required for assembly.

### NAILS

Nails for securing gravel stop sections and cover plates shall be Aluminum roofing nails.





## INSTALLATION IS SIMPLE

1. Work from the corner;
2. Place 10-foot section of Extruded Gravel Stop;
3. Nail at center only;
4. Slide on Extruded Joint Cover Plate to clear joint;
5. Place next 10-foot section of Extruded Gravel Stop, allowing  $\frac{3}{4}$ " between sections for expansion and nailing.
6. Slide Extruded Joint Cover Plate over joint on bed of bituminous mastic and nail.

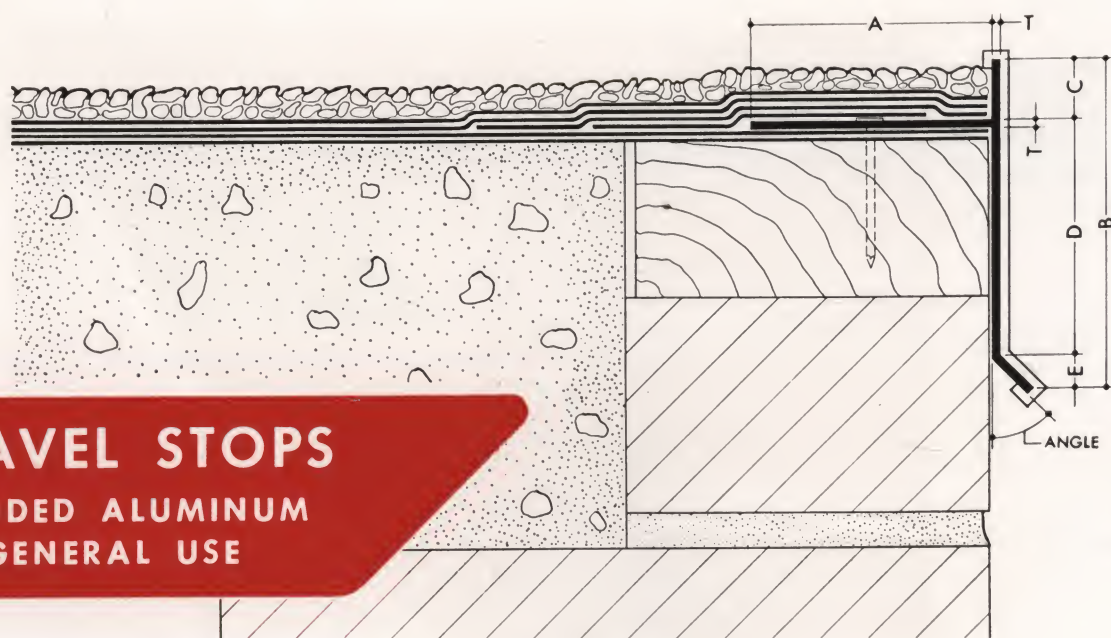
ALUMINUM COMPANY OF AMERICA





## GRAVEL STOPS

### EXTRUDED ALUMINUM FOR GENERAL USE



SCALE — HALF FULL SIZE

The use of these Alcoa Extruded Gravel Stops with their Joint Cover Plates gives a positive water-sealed unit at minimum cost. Installation of these sections is ac-

complished by driving one nail in the center of each length and one through a slotted hole in each end.

This Gravel Stop was designed for general purpose use.

## MASTER SPECIFICATIONS INSERT

(Master Specifications on Pages 16 and 17)

### EXTRUDED SHAPES

Extruded shapes shall be Alcoa Aluminum alloy 3S, as extruded, Federal Specification QQ-A-356b, Condition F, not less than 0.093 inch thick unless otherwise specified.

Extruded shapes shall have smooth, clean, sharp profiles, true to details, dimensions, design requirements and unless otherwise noted, shall be straight and true to line,

and shall conform to Alcoa standard tolerance for extruded shapes.

Extruded shapes formed to curve shall be true to radii and free from buckling, kinking or twisting. Certain or all shapes shall be made with miters, slots and holes as required for assembly.

### NAILS

Nails for securing Gravel Stop sections and Cover Plates shall be Aluminum roofing nails.

DIE NUMBERS		DIMENSIONS IN INCHES						Angle	Weight per Foot	Factor
Gravel Stop	Joint Cover	A	B	C	D	E	T			
22928	22927	1 <sup>29</sup> / <sub>32</sub>	6	1 <sup>13</sup> / <sub>32</sub>	4 <sup>11</sup> / <sub>32</sub>	1/4	3/32	45°	.906	18
22930	22929	3	7 <sup>3</sup> / <sub>4</sub>	5/8	6 <sup>7</sup> / <sub>8</sub>	1/4	1/8	45°	1.620	13-
23794	23795	2 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>	5/8	2 <sup>19</sup> / <sub>32</sub>	9/32	3/32	45°	.684	18
24915	24916	1 <sup>3</sup> / <sub>4</sub>	4 <sup>7</sup> / <sub>16</sub>	1	3 <sup>7</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>4</sub>	3/32	47°55'	.710	18
25282	25281	2	5	1	3 <sup>9</sup> / <sub>16</sub>	7/16	3/32	45°35'	.804	18
25629	25630	2 <sup>13</sup> / <sub>32</sub>	3 <sup>1</sup> / <sub>2</sub>	2 <sup>9</sup> / <sub>32</sub>	1 <sup>31</sup> / <sub>32</sub>	5/8	3/32	29°40'	.672	18





**SPECIFICATIONS FOR  
COPINGS AND GRAVEL STOPS OF**

# **ALCOA ALUMINUM**

**Together with technical data on the characteristics  
of wrought and cast Alcoa Aluminum Alloys**





# MASTER SPECIFICATIONS (Long Form)

## GENERAL CONDITIONS

The "General Conditions of the Contract for the Construction of Buildings," Standard Form of the American Institute of Architects, latest edition, Articles 1 to 44 inclusive, are hereby made a part of this specification.

## SUPPLEMENTARY GENERAL CONDITIONS

The Supplementary General Conditions, pages 1 to — inclusive, are hereby made a part of this specification.

## SCOPE OF WORK

This Contractor shall furnish all labor and materials to complete all aluminum (*state which*) (Coping) (Gravel Stop) work shown on the drawings or specified herein, or both, as follows (*state which and indicate locations for each*):

(Type A-46 Alcoa Aluminum Copings) (Type B-46 Alcoa Aluminum Copings) (Type C-46 Alcoa Aluminum Copings) (Type D-46 Alcoa Aluminum Fascia and Gravel Stops) (Alcoa Aluminum Gravel Stops) [Special Alcoa Aluminum (*state which*) (Copings) (Fascia) (Gravel Stops)];

Supports, fastenings, Cover Plates or other accessories required for the proper installation of Aluminum (*state which*) (Copings) (Fascia) (Gravel Stops);

Necessary caulking compounds;

Priming and back-painting of Aluminum (*state which*) (Copings) (Fascia) (Gravel Stops);

Scaffolding;

Shop and setting drawings.

This Contractor, before commencing any work, shall verify governing dimensions at the building and examine adjoining work on which this work is in any way dependent for its acceptable installation according to the intent of this specification. He shall prepare and submit shop drawings, illustrating in detail the various portions of the work, the kind of material, the size of members, the method of securing same together and to work of other trades, in accordance with Article 5 of the General Conditions. After approval, the Contractor shall furnish the necessary prints for the use of the Architect, the Owner, and other interested trades.

## MATERIALS

Aluminum alloy products shall be of Alcoa Aluminum Alloys, of uniform quality, free from injurious defects, and shall meet the properties and the specifications of Aluminum Company of America governing the alloys specified.

(*State which*) (Copings) (Fascia) (Gravel Stops), where identified by number on the drawings, shall be extruded from available dies of Aluminum Company of America. Where sections are shown for dies which are not available,

the Contractor shall include the cost of the necessary dies in his bid and shall furnish all extruded (*state which*) (Copings) (Fascia) (Gravel Stops) sections shown, whether from standard available dies or new dies.

Corner sections shall be fabricated with welded or brazed miters, with welds and brazed joints ground to a smooth finish on exposed surfaces. Anchors at joints for corner sections shall be located not more than 18 inches from the corner at wall intersection.

When government specifications for aluminum alloys are used, the issue of such specification in effect for each alloy at the date of the proposals for bids shall apply.

NOTE TO ARCHITECT: *Insert specification paragraphs from detail page in this book for Coping, Fascia or Gravel Stop being specified.*

## CAULKING COMPOUNDS

Caulking compounds for caulking at joint cover plates and wherever necessary shall be elastic compounds of recognized and approved manufacturers of such products.

## WELDING AND BRAZING

Welding and brazing shall be in accordance with the recommendations of Aluminum Company of America as contained in their latest publication "Welding and Brazing Alcoa Aluminum."

Welding rod, filler wire, brazing wire, flux, etc., shall be in accordance with the recommendations of Aluminum Company of America for use in conjunction with the Alcoa Aluminum Alloys specified to be welded or brazed.

Cleaning of welds and brazed joints shall be in strict accordance with the recommendations of Aluminum Company of America.

## EXPANSION

All aluminum work shall be so designed and anchored that the work will not be objectionably distorted nor the fastenings seriously stressed from the expansion and contraction of the metal.

NOTE TO ARCHITECT: *Aluminum alloys used for architectural work have a coefficient of thermal expansion of approximately 0.000013 per degree F. per unit of length.*

## DISSIMILAR METAL CONTACT SURFACES

Where any aluminum work comes in contact with dissimilar metal parts, the aluminum shall be kept from direct contact with such parts by application of alkali resistant bituminous paint in accordance with the recommendations of Aluminum Company of America.



Steel anchors and connecting members in contact with aluminum shall have a shop coat of red lead and oil, or lead chromate primer, followed by two coats of approved aluminum or bituminous paint; or they may be hot galvanized.

## FINISHES

The finishes on exposed surfaces shall be as indicated on the drawings, match the approved samples and be in accordance with the specifications for the type of finish designated.

**NOTE TO ARCHITECT:** *It is suggested that a representative of Aluminum Company of America be consulted when specifying finishes other than standard surface as fabricated.*

## PROTECTIVE COATINGS

Before shipment from the factory, the aluminum work shall be given a coating on all finished or exposed surfaces which will protect the metal and finish against stain, discoloration and other surface injuries. The protective coating shall be of such character that it will neither melt nor drip in hot weather nor chip off in cold weather. It shall be of such composition that it may be easily removed with a recommended solvent which is not harmful to aluminum.

During the erection of the building, the aluminum shall be protected from the accumulation of paint, moist plaster, mortar or cement.

**NOTE TO THE ARCHITECT:** *Lacquer coatings appear to be the most generally satisfactory for the temporary protection of aluminum architectural materials. Best results are obtained by applying either two coats of lacquer or one coat of lacquer followed by one coat of liquid wax. Lacquers of the methacrylate type or the Hercose "C" type have proved satisfactory for this application. These transparent coatings have an additional advantage, since they need not be removed when construction is completed.*

Aluminum surfaces to be placed in contact with masonry

construction shall, before shipment from the fabricating plant, be given a heavy coat of an alkali resistant bituminous paint. The quality of the bituminous paint used shall be equal to that called for in the Army-Navy-Aeronautical Specification AN-P-31. The paint shall be applied as it is received from the manufacturer, without the addition of any thinner.

## INSTALLATION

This Contractor shall cooperate with other trades in the correct placing of anchorage and the preparation of those surfaces which are to receive aluminum (*state which*) (Copings) (Fascia) (Gravel Stops). Any defects in such work of other trades shall be reported to the Architect in writing. The Architect will cause all defects to be remedied. The commencing of installation work by this Contractor shall indicate his acceptance of adjoining work.

(*State which*) (Copings) (Fascia) (Gravel Stops) shall be set level and to proper and true planes as shown on the drawings.

Fasten each (*state which*) (Copings) (Fascia) (Gravel Stops) section making due allowance for expansion at joints.

Anchor Bolt units used to secure Copings or Gravel Stops to other materials or at Expansion Joint Covers shall be tightened sufficiently to properly secure the work and still permit expansion and contraction of the assembly. Screws used to secure Copings and Gravel Stops to other materials or at Expansion Joint Covers shall be lightly tightened to permit easy expansion movement of the aluminum.

## FINAL CLEANING

After installation is completed, all aluminum work shall be washed with a mild solution of non-alkali soap and water followed by a clear water rinse. Refinish where necessary, replace badly damaged parts and leave in complete and finished condition, satisfactory to the Architect.

# SPECIFICATION (Short Form)

This Contractor shall furnish and install all aluminum (*state which*) (Copings) (Fascia) (Gravel Stops) shown on the drawings and/or specified herein, as follows:

(*State which*) (Alcoa Type A-46 Copings) (Alcoa Type B-46 Copings) (Alcoa Type C-46 Copings) (Alcoa Type D-46 Fascia and Gravel Stops) (Alcoa Extruded Gravel Stops consisting of Alcoa Die Nos. 39258 and 39259) (Alcoa Aluminum (*state which*) (Copings) (Fascia) (Gravel Stops) of special design as shown on the drawings.)

Fabrication and erection shall be in strict accordance with recommended standards of Aluminum Company of America.



# CHARACTERISTICS OF WROUGHT AND CAST ALCOA ALUMINUM ALLOYS

Complete listing of U. S. Navy, Army-Navy Aeronautical and Federal Specifications to which Alcoa alloys correspond will be furnished upon request.

Typical Alcoa Aluminum Alloys <sup>1</sup>			Approximate Chemical Composition (Per Cent)										Condition	Approx. Sp. Gr. (Grams/cc.)	Approx. Weight (lb./cu. in.)	Relative Resistance to Salt Water <sup>6</sup>	Typical Mechanical Properties <sup>3</sup>								Relative Suitability for Being Welded <sup>2</sup>	Relative Machinability <sup>7</sup>	Alcoa Alloy No.		
A.S.T.M. Designation		Spec. No.	Alloy	Copper	Silicon	Manganese	Magnesium	Zinc	Nickel	Chromium	Lead	Bismuth					Iron	Ultimate Tensile Strength (1,000 lb./sq. in.)	Yield Strength <sup>2</sup> (1,000 lb./sq. in.)	Sheet Specimen (1/8 in. thick) (% in. diam.)	Rod Specimen (1/2 in. diam.)	Elongation (% in 2 in.)	Yield Strength in Compression (1,000 lb./sq. in.)	Shear Strength <sup>4</sup> (1,000 lb./sq. in.)				Fatigue Endurance Limit <sup>5</sup> (1,000 lb./sq. in.)	Brinell Hardness (500-kg. load, 10-mm. ball.)
WROUGHT ALLOYS			99% Min. Aluminum																										
825-44T	25	25-O	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13	5	35	45	5	5	9.5	5.0	23	A	A	A	B	25-O	
825-44T	25	25-H	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24	21	5	15	21	13.0	8.5	44	D	A	A	A	B	25-H	
879-44T	29	3S-O	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16	6	30	40	6	11.0	7.0	28	A	A	A	A	B	3S-O	
879-44T	29	3S-H	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	29	25	4	10	25	16.0	10.0	55	D	A	A	A	B	3S-H	
.....	.....	11S-T3	5.5	.....	.....	.....	.....	.....	.....	.....	0.5	0.5	.....	.....	53	47	.....	15	47	30.0	12.5	95	E	D	B	D	A	11S-T3	
.....	.....	11S-T8	5.5	.....	.....	.....	.....	.....	.....	.....	0.5	0.5	.....	.....	57	44	.....	14	44	33.0	.....	100	E	D	B	D	A	11S-T8	
878-44T	26	17S-O	4.0	.....	.....	0.5	0.5	.....	.....	.....	.....	.....	.....	.....	26	10	.....	22	10	18.0	11.0	45	B	D	D	D	B	17S-O	
878-44T	26	17S-T	4.0	.....	.....	0.5	0.5	.....	.....	.....	.....	.....	.....	.....	62	40	.....	22	40	38.0	18.0	105	E	D	D	D	A	17S-T	
.....	.....	A17S-T	2.5	.....	.....	.....	0.3	.....	.....	.....	.....	.....	.....	.....	43	24	.....	27	24	28.0	13.5	70	C	.....	.....	.....	A	A17S-T	
.....	24	24S-O	4.5	.....	.....	0.6	1.5	.....	.....	.....	.....	.....	.....	.....	27	11	19	22	11	18.0	12.0	42	B	D	D	D	B	24S-O	
.....	24	24S-T	4.5	.....	.....	0.6	1.5	.....	.....	.....	.....	.....	.....	.....	68	46	19	22	46	41.0	18.0	120	E	D	D	D	A	24S-T	
.....	24	24S-RT	4.5	.....	.....	0.6	1.5	.....	.....	.....	.....	.....	.....	.....	73	57	13	.....	57	42.0	.....	130	F	D	D	D	A	24S-RT	
.....	.....	43S	.....	.....	5.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	18	11	.....	18	11	12	.....	.....	.....	.....	.....	.....	A	43S	
B109-44T	201	52S-O	.....	.....	.....	2.5	.....	.....	.....	0.25	.....	.....	.....	.....	29	14	25	30	14	18.0	17.0	45	B	B	B	D	B	52S-O	
B109-44T	201	52S-H	.....	.....	.....	2.5	.....	.....	.....	0.25	.....	.....	.....	.....	41	36	7	8	36	24.0	19.0	85	D	B	A	D	B	52S-H	
.....	.....	53S-O	.....	.....	0.7	1.3	.....	.....	.....	0.25	.....	.....	.....	.....	16	7	.....	35	7	11.0	8.0	26	A	A	B	B	B	53S-O	
.....	.....	53S-W	.....	.....	0.7	1.3	.....	.....	.....	0.25	.....	.....	.....	.....	33	20	.....	30	20	20.0	13.0	65	C	A	A	B	B	53S-W	
.....	.....	53S-T	.....	.....	0.7	1.3	.....	.....	.....	0.25	.....	.....	.....	.....	39	33	.....	20	33	24.0	13.0	80	D	A	A	B	B	53S-T	
.....	.....	61S-O	0.25	0.6	.....	1.0	.....	.....	.....	0.25	.....	.....	.....	.....	18	8	22	30	8	12.5	9.0	30	A	A	A	B	A	61S-O	
.....	.....	61S-W	0.25	0.6	.....	1.0	.....	.....	.....	0.25	.....	.....	.....	.....	35	21	22	25	21	24.0	13.5	65	C	A	A	A	B	61S-W	
.....	.....	61S-T	0.25	0.6	.....	1.0	.....	.....	.....	0.25	.....	.....	.....	.....	45	40	12	17	39	30.0	13.5	95	D	A	A	A	B	61S-T	
.....	.....	63S	.....	.....	0.4	0.7	.....	.....	.....	.....	.....	.....	.....	.....	23	17	.....	17	17	14	.....	.....	B	A	A	B	B	63S	
.....	.....	63S-T5	.....	.....	0.4	.....	0.7	.....	.....	.....	.....	.....	.....	.....	31	24	.....	14	24	19	.....	.....	B	A	A	B	B	63S-T5	
FORGING ALLOYS																													
.....	.....	11S-T	5.5	.....	.....	.....	.....	.....	.....	.....	0.5	0.5	.....	.....	57	36	15.0	.....	36	31.0	13.0	110	.....	.....	.....	.....	A	11S-T	
.....	.....	14S-T	4.4	0.8	.....	0.8	0.4	.....	.....	.....	.....	.....	.....	.....	70	60	13.0	.....	55	42.0	18.0	135	.....	.....	.....	.....	A	14S-T	
.....	.....	17S-T	4.0	.....	.....	0.5	0.5	.....	.....	.....	.....	.....	.....	.....	62	40	22.0	.....	40	38.0	18.0	100	.....	.....	.....	.....	A	17S-T	
.....	280	A51S-T	.....	1.0	.....	0.6	.....	.....	.....	.....	0.25	.....	.....	.....	47	40	20.0	.....	40	32.0	11.0	100	.....	.....	.....	.....	B	A51S-T	
.....	.....	53S-T	.....	0.7	.....	1.3	.....	.....	.....	.....	0.25	.....	.....	.....	39	33	20.0	.....	33	24.0	13.0	80	.....	.....	.....	.....	B	53S-T	



PERMANENT-MOLD CASTING ALLOYS																								
B26-44T	S1	35	43	.....	5.0	.....	.....	As Cast.....	2.69	0.097	B	19	9	6.0	10	14.0	6.5	40	....	A	.....	B	43	
B26-44T	C1	38	195-T4	4.5	0.8	.....	.....	Heat-treated.....	2.81	0.101	C	32	16	8.5	16	24.0	6.0	60	.....	.....	.....	B	195-T4	
B26-44T	C1	38	195-T6	4.0	0.8	.....	.....	H. T. & Aged.....	2.81	0.101	C	36	24	5.0	25	30.0	6.5	75	.....	.....	.....	B	195-T6	
B26-44T	C1	38	195-T62	4.0	0.8	.....	.....	H. T. & Aged.....	2.81	0.101	C	40	30	2.0	38	31.0	7.0	95	.....	.....	.....	B	195-T62	
B26-44T	G1	320	214	.....	.....	3.8	.....	As Cast.....	2.65	0.096	A	25	12	9.0	12	20.0	5.5	50	....	D	D	B	214	
.....	.....	B214	.....	1.8	.....	3.8	.....	As Cast.....	2.65	0.096	A	20	13	2.0	15	17.0	.....	50	....	D	D	B	B214	
.....	.....	F214	.....	0.5	.....	3.8	.....	As Cast.....	2.65	0.096	A	20	12	3.0	.....	.....	.....	50	....	D	D	B	F214	
.....	.....	324	220-T4	.....	.....	10.0	.....	Heat-treated.....	2.58	0.093	A	46	25	14.0	26	33.0	7.0	75	.....	.....	.....	B	220-T4	
B26-44T	SC21	322	355-T6	1.3	5.0	.....	0.5	H. T. & Aged.....	2.70	0.096	C	35	25	2.5	29	30.0	8.5	80	.....	.....	.....	B	355-T6	
B26-44T	SC21	322	355-T51	1.3	5.0	.....	0.5	Aged.....	2.70	0.096	C	28	23	1.5	24	22.0	7.0	65	.....	.....	.....	B	355-T51	
B26-44T	SG1	323	356-T6	.....	7.0	.....	0.3	H. T. & Aged.....	2.68	0.097	B	33	24	4.0	22	27.0	8.0	70	.....	.....	.....	B	356-T6	
B26-44T	SG1	323	356-T51	.....	7.0	.....	0.3	Aged.....	2.68	0.097	B	25	20	2.0	22	18.0	7.5	60	.....	.....	.....	B	356-T51	
PERMANENT-MOLD CASTING ALLOYS																								
B108-44T	S1	35	43	.....	5.0	.....	.....	As Cast.....	2.69	0.097	B	24	9	9.0	9	18.0	.....	45	....	A	A	C	B	43
B108-44T	CS4	380	B195-T4	4.5	2.5	.....	.....	Heat-treated.....	2.78	0.101	C	40	22	10.0	22	30.0	9.5	75	.....	.....	.....	B	B195-T4	
B108-44T	CS4	380	B195-T6	4.5	2.5	.....	.....	H. T. & Aged.....	2.78	0.101	C	45	33	5.0	33	32.0	10.0	90	.....	.....	.....	B	B195-T6	
.....	.....	.....	A214	.....	.....	3.8	1.8	As Cast.....	2.65	0.096	B	27	16	7.0	17	22.0	.....	60	....	D	D	B	A214	
.....	.....	322	355-T6	1.3	5.0	.....	0.5	H. T. & Aged.....	2.70	0.098	C	43	27	4.0	26	30.0	9.0	90	.....	.....	.....	B	355-T6	
.....	.....	322	355-T51	1.3	5.0	.....	0.5	Aged.....	2.70	0.098	C	30	24	2.0	24	24.0	.....	75	.....	.....	.....	B	355-T51	
B108-44T	SG1	323	356-T6	.....	7.0	.....	0.3	H. T. & Aged.....	2.68	0.097	B	40	27	5.0	24	.....	.....	90	.....	.....	.....	B	356-T6	
DIE-CASTING ALLOYS																								
B85-44T	S5	305	13	.....	12.0	.....	.....	As Cast.....	2.66	0.096	B	37	18	1.8	.....	.....	15.0	.....	.....	D	D	B	13	
B85-44T	S4	304	43	.....	5.0	.....	.....	As Cast.....	2.69	0.097	B	30	14	7.0	.....	.....	.....	.....	.....	D	D	B	43	
B85-44T	SC5	307	85	4.0	5.0	.....	.....	As Cast.....	2.78	0.101	C	40	22	3.5	.....	.....	17.0	.....	.....	D	D	B	85	
.....	.....	.....	218	.....																				

B85-44T	S5	13	12.0	.....	.....	.....	As Cast	.....	2.66	0.096	B	37	18	1.8	.....	15.0	.....	D	D	.....	B	13
B85-44T	S4	304	5.0	.....	.....	.....	As Cast	.....	2.69	0.097	B	30	14	7.0	.....	.....	.....	D	D	.....	B	43
B85-44T	SC5	307	4.0	5.0	.....	.....	As Cast	.....	2.78	0.101	C	40	22	3.5	.....	17.0	.....	D	D	.....	B	85
.....	.....	218	.....	.....	8.0	.....	As Cast	.....	2.53	0.091	A	42	23	7.0	.....	18.0	.....	D	D	.....	B	218
.....	.....	360	.....	.....	0.5	.....	As Cast	.....	2.68	0.097	B	42	23	1.8	.....	.....	.....	D	D	.....	B	360
B85-44T	SC7	E308	3.5	8.5	.....	.....	As Cast	.....	2.76	0.099	C	45	25	2.0	.....	.....	.....	D	D	.....	B	380

For all Alcoa alloys, wrought and cast, the following data apply:

(a) Young's modulus of elasticity may be taken as 10,300,000 lb. per sq. in.; (b) Modulus of rigidity may be taken as 3,800,000 lb. per sq. in.; (c) Poisson's ratio is 0.33; (d) Bearing strength is equal to 1.8 times the tensile strength, provided the edge distance, in the direction of stressing, is not less than twice the diameter of the hole.

<sup>3</sup>Mechanical properties are obtained on A.S.T.M. specimens. Since minimum guaranteed values vary with the commodity, these values are not given.

<sup>4</sup>Shearing strengths are single-shear values obtained from double-shear tests.

<sup>5</sup>Fatigue endurance values are based on withstanding 500 million cycles of completely reversed stress using the R. R. Moore type of machine and specimen.

<sup>6</sup>An "A" rating is highest. Rating compares the stability of all aluminum-base alloys as a group and are not to be used in comparison with other metals.

aluminum-base alloys as a group, and is based on results of standard salt-spray tests. However, under many conditions, alloys rated "D" are used with entirely satisfactory results; on the other hand, alloys rated "A" require protection in some exposures.

<sup>7</sup>Relative hot and cold workability, weldability, brazability and machinability are indicated as follows: A = Excellent, B = Good, C = Fair, and D = Poor. Ratings are based on aluminum-base alloys as a group and are not to be used in comparison with other metals.



# ALUMINUM COMPANY OF AMERICA

## SALES OFFICES

AKRON 8, OHIO.....	506 Akron Savings & Loan Building
ALBANY 7, N. Y.....	90 State Street
ATLANTA 3, GA.....	1818 Rhodes-Haverty Building
BALTIMORE 1, MD.....	400 Baltimore Life Building
BIRMINGHAM 3, ALA.....	619 First National Building
BOSTON 16, MASS.....	20 Providence Street, Park Square
BUFFALO 7, N. Y.....	1880 Elmwood Avenue
CHARLOTTE 2, N. C.....	815 Johnston Building
CHICAGO 11, ILL.....	520 North Michigan Avenue
CINCINNATI 2, OHIO.....	16th Floor, Times-Star Building
CLEVELAND 1, OHIO.....	1520 Midland Building
COLUMBUS 15, OHIO.....	526 Rowlands Building
DALLAS 1, TEXAS.....	821 Mercantile Bank Building
DAVENPORT, IOWA.....	503 Kahl Building
DAYTON 2, OHIO.....	302 Harries Building
DENVER, COLO.....	Chamber of Commerce Building
DETROIT 2, MICH.....	610 New Center Building
FAIRFIELD, CONN.....	Post Road
GRAND RAPIDS 2, MICH.....	812 Michigan National Bank Building
HARTFORD 3, CONN.....	Capitol Building, 410 Asylum Street
HOUSTON 2, TEXAS.....	1806 Commerce Building
INDIANAPOLIS 4, IND.....	817 Merchants Bank Building
JACKSON, MICH.....	1407 National Bank Building
KANSAS CITY 6, MO.....	2300 Power & Light Building
LOS ANGELES 14, CALIF.....	108 West Sixth Street
LOUISVILLE 2, KY.....	1154 Starks Building
MILWAUKEE 2, WIS.....	735 North Water Street
MINNEAPOLIS 2, MINN.....	1060 Northwestern Bank Building
NEWARK 2, N. J.....	744 Broad Street
NEW ORLEANS 12, LA.....	707 American Bank Building
NEW YORK 17, N. Y.....	230 Park Avenue
OKLAHOMA CITY 2, OKLA.....	1209 Apco Tower
PHILADELPHIA 9, PA.....	123 S. Broad Street
PITTSBURGH 22, PA.....	District Sales — 1814 Oliver Building
PITTSBURGH 19, PA.....	General Offices — Gulf Building
PONTIAC 15, MICH.....	301 Pontiac State Bank Building
PORTLAND 4, ORE.....	512 Porter Building
PROVIDENCE 3, R. I.....	1421 Industrial Trust Building
RICHMOND 19, VA.....	213 Exchange Building
ROCHESTER 4, N. Y.....	1331 Lincoln Alliance Bank Building
ST. LOUIS 8, MO.....	10th Floor, Continental Building
SAN FRANCISCO 4, CALIF.....	615 Russ Building
SEATTLE 1, WASH.....	1411 Fourth Avenue Building
SOUTH BEND 5, IND.....	805 J.M.S. Building
SPRINGFIELD, ILL.....	716-18 Reisch Building
SPRINGFIELD 3, MASS.....	507 Tarbell-Watters Building
SYRACUSE 2, N. Y.....	1014 State Tower Building
TAMPA 2, FLA.....	401 Tampa Theatre Building
TOLEDO 4, OHIO.....	1801 Ohio Building
TULSA 3, OKLA.....	404 Tuloma Building
WASHINGTON 5, D. C.....	605 Southern Building
WICHITA 2, KAN.....	411 Fourth National Bank Building
WILMINGTON 50, DEL.....	310 Pennsylvania Building
YORK, PA.....	203 Manufacturers Building



THE WORD "ALCOA" AND THE ADJACENT DESIGN are registered trademarks applied to the products of Aluminum Company of America, whose technical staff exercises the most rigid control over every process in the production of Alcoa Aluminum . . . from the mining of bauxite ore to the production of uniform and high quality aluminum and aluminum alloys, in every commercial form.





# Aluminum Company of America

*Pittsburgh, Pa.*

A.I.A. FILE No. 12-L-2

## ALUMINUM COPINGS AND GRAVEL STOPS

NOTE: In the publication "Copings and Gravel Stops of Alcoa Aluminum", please note slight corrections to weights and factors of several extrusion section numbers as follows:

Page 4 Die No. 36723 should read 1.092 lb. lin. ft., Factor 17

Die No. 36724 should read 0.371 lb. lin. ft.,

Die No. 36725 should read 0.569 lb. lin. ft., Factor 13

Page 6 Die No. 39260 should read 1.723 lb. lin. ft.,

Page 10 Die No. 36721 should read 1.874 lb. lin. ft., Factor 17

Die No. 36722 should read 1.630 lb. lin. ft.,

Page 12 Die No. 39258 should read 1.340 lb. lin. ft.,



